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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,809	07/23/2001	Mayumi Tomikawa	522.1921D3	6031
21171	7590	12/29/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005				DEJONG, ERIC S
			ART UNIT	PAPER NUMBER
			1631	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/909,809	TOMIKAWA ET AL.
	Examiner Eric S. DeJong	Art Unit 1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 24 October 2005.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 16,17 and 23-26 is/are pending in the application.
- 4a) Of the above claim(s) 26 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 12, 17, and 23-25 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

## **DETAILED OFFICE ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/24/2005 has been entered.

### ***Withdrawal of Claim***

Newly submitted claim 26 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The claims 16, 17, and 23-25 are drawn to methods and a system of analyzing three-dimensional structures by generating generic optimized correspondences between set points describing two three-dimensional structures and calculating root mean square deviations (RMSD) between corresponding elements. In contrast new claim 26 does not involve any analysis of three dimensional structures, but rather is drawn to a method of searching and evaluating amino acid sequence information. Further, claim 26 does not recite any computation involving an RMSD calculation.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for

prosecution on the merits. Accordingly, claim 26 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16, 17, and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Pantoliano et al. US 4,853,871 or Holak et al. (J. Mol. Biol., 210, 653-648) or Flaherty et al. (Proc. Natl. Acad. Sci. USA, 88, 5041-5045) or Mosimann et al. (Proteins: Structure, Function and Genetics, 14, 392-400, 1992). This rejection is maintained reiterated and from the previous Office Action.

The instant claims are drawn to methods and a system of analyzing three-dimensional structures by generating generic optimized correspondences between set points describing two three-dimensional structures and calculating root mean square deviations (RMSD) between corresponding elements. As such, the claims read on any reference teaching comparison of two three dimensional structures and calculating RMSD therefor. The following references are exemplary of this commonly used approach to comparing 3D structures.

Pantoliano et al. describes a method and means for evaluating protein's structure comprising comparing first set of three-dimensional coordinates of two amino acid

residues with geometric conformation (i.e., with second set of three-dimensional coordinates) possessed by atoms of a disulfide bond. See for example claims 1, 2, and 6 and the summary of the invention, column 3, line 35 through column 4, line 40.

Holak et al. teach comparing three-dimensional structures of 34 structures of trypsin inhibitor with minimized mean structure, and calculating RMSD between structures. See abstract.

Flaherty et al. describe a comparison of muscle actin and heat shock cognate protein and demonstrate that calculation of RMSD between comparable spatial fragments shows close similarity of the structures of these proteins. See abstract.

Mosimann et al. describe a process for comparison of molecular models of P-30 protein and pancreatic RNAase. The all atom superposition of active site residues of the P-30 and an identically minimized RNAase structure has a root square deviation of 0.52 Å. See abstract.

### ***Double Patenting***

Regarding use of the specification in obviousness-type double patenting rejections, the MPEP states in section 804:

When considering whether the invention defined in a claim of an application is an obvious variation of the invention defined in the claim of a patent, the disclosure of the patent may not be used as prior art. This does not mean that one is precluded from all use of the patent disclosure.

The specification can always be used as a dictionary to learn the meaning of a term in the patent claim. *In re Boylan*, 392 F.2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in the application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F.2d 438, 441-42, 164 USPQ 619, 622 (CCPA 1970). The court in *Vogel* recognized “that it is most difficult, if not meaningless, to try to say what is or is not an obvious variation of a claim,” but that one can judge whether or not the invention claimed in an application is an obvious variation of an embodiment disclosed in the patent which provides support for the patent claim. According to the court, one must first “determine how much of the patent disclosure pertains to the invention claimed in the patent” because only “[t]his portion of the specification supports the patent claims and may be considered.” The court pointed out that “this use of the disclosure is not in contravention of the cases forbidding its use as prior art, nor is it applying the patent as a reference under 35 U.S.C. 103, since only the disclosure of the invention claimed in the patent may be examined.”

Claims 16, 17 and 23 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of copending Application No. 09/910,071. Although the conflicting claims are not identical, they are not patentably distinct from each other because copending claim 13 recites a generic method for analyzing three dimensional structures comprising dividing point sets from three dimensional coordinates, generating a combination of correspondence, and

calculating a root mean square distance, as instantly claimed. The instant claims are for narrowly drawn to further determining the optimum correspondence between the elements. However, the disclosure of copending application No. 09/910,071 teaches a preferred embodiment of the generic method which further comprises a step of determining the optimum correspondence between the elements (see specification of copending application No. 09/910,071, pages 8 line 21 through page 9, line 19).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Response to Arguments***

Applicant's arguments filed 10/24/2005 have been fully considered but they are not persuasive.

Applicants argue that Pantoliano et al., Holak et al., and Flaherty et al. does not recite automatically determining distance between elements of the first point sets and the elements of a second point set and determining a length of a longest common subsequence.

Instant claim 16 in lines 16-21 recites:

"calculating a root mean square distance between all of the elements corresponding to the optimum correspondence to automatically determine a distance between elements of the first point set and the elements of the second point set that have an optimal correspondence and to determine a length of a longest common subsequence (LCS) between a character sequence expressing the input amino acid sequence and a character sequence expressing the amino acid sequence having the greatest correspondence to the input amino acid sequence."

Therefore, calculating an RMSD between corresponding elements of the structures under analysis results in automatically determining distance between elements of the first point sets and the elements of a second point set and determining a length of a longest common subsequence as instantly claimed. Pantoliano et al., Holak et al., and Flaherty et al. each methods of analyzing three-dimensional structures that involve the determination of RMSD between elements of compared structures. Thus, the methods of Pantoliano et al., Holak et al., and Flaherty et al., as well as that of Mosimann et al. though not specifically asserted by applicants, provide for a calculation of RMSD between corresponding elements and anticipate the claimed limitations drawn to automatically determining distance between elements of the first point sets and the elements of a second point set and determining a length of a longest common subsequence.

In regards to Mosimann et al., Applicants argument only consists of a description of the cited reference and fail to point to any specific differences between the instant claims and said references or address the merit of the previously presented rejection. Therefore, Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

***Conclusion***

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instrument Examiner, Tina Plunkett, whose telephone number is (571) 272-0549.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric S. DeJong whose telephone number is (571) 272-6099. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel, Ph.D. can be reached on (571) 272-0718. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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For all other customer support, please call the USPTO Call Center at (800) 786-9199.

EDJ *EDJ*

*John S. Brusca 22 December 2005*  
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PRIMARY EXAMINER